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Oribatid mites from the Arabian Peninsula, including further records from Socotra (Acari: Oribatida).

(Acarologica Genavensia CXII*)*

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Oribatid mites from the Arabian Peninsula, including further records from Socotra (Acari: Oribatida) ***(Acarologica Genavensia*** **CXII).** - Nineteen newly determined oribatid species and one not identified species (*Eremobelba* sp.) are reported from three regions of the Arabian Peninsula. Six of them are described as new to science: *Papillocepheus longisetosus* sp. n., *Eremulus arabicus* sp. n., *Decoroppia prodigiosa* sp. n., *Ethiovertex vanharteni* sp. n., *Zygoribatula sharjah* sp. n., *Scheloribates sacculipunctatus* sp. n. One species represents a new genus, *Decoroppia* gen. n. (Oppiidae), for which the new subfamily *Decoroppiinae* subfam. n. is proposed.

Keywords: Taxonomy - new species - new genus - new subfamily.

INTRODUCTION

Antonius van Harten, an excellent collector of soil arthropods in tropical regions, has been gathering samples in the Arabian Peninsula, for some time, particularly in Yemen, and more recently in the territory of the United Arab Emirates. I have already elaborated (Mahunka, 2000) samples from Yemen collected by him, described taxa new to science and also listed many poorly known species from this region. The recently collected material contains several new, taxonomically and zoogeographically interesting species, an account of which is given here. From mainland Yemen he collected three species for the first time, one of them is described as new to science. Among the specimens from the United Arab Emirates eleven species could be identified, three of them are described as new to science; five of them are recorded for the first time for this region, while three of them were collected earlier in mainland Yemen.

The extraordinary fauna of Yemen's Sokotra Archipelago is famous, and it is known that the affinities of its insect and vertebrate fauna lie with the Ethiopian region rather than the Arabian Peninsula. Kay van Damme, from Ghent University (Belgium), collected aquatic mites from there. Although his collecting was not focussed on the soil fauna, the material includes a small number of oribatid specimens. Unfortunately, many of these are badly damaged, but the identification of five species was possible,

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two of which were new to science, and for one of them the establishment of a new genus was necessary suggesting also the proposition of a new subfamily. All species treated here are recorded for the first time for the Archipelago and four of them are also new for the Yemen. The Oribatida fauna of the Socotra Archipelago, as far as I am aware, has been quite unknown up to know.

The Oribatida fauna of Yemen is poorly known. Saudi Arabia is a better explored part in the region, from where Al-Khalifa & Bayoumi (1983a, 1983b) and Bayoumi & Al-Khalifa (1983, 1984, 1985, 1986a, 1986b)) described some taxa. Unfortunately, the descriptions of these species are inadequate and consequently some of them need revision. The material treated here supports this observation. To clarify these problems further investigations are needed.

MATERIAL AND METHODS

In this paper I follow the system of Marshall *et al.* (1987), with some modifications introduced by Woas (2002), Subías (2004) and Weigmann (2006). In the descriptions the morphological terminology of Woas (2002) was used with some modifications concerning the studied groups (e.g. Norton *et al.*, 1997, Mahunka & Mahunka-Papp, 2001), and the above mentioned authors). Depositories: MHNG = Muséum d'histoire naturelle, Geneva, Switzerland; HNHM: Hungarian Natural History Museum, Budapest, Hungary.

LIST OF LOCALITIES

United Arab Emirates

UAE-556: UNITED ARAB EMIRATES: Near al-Hayer, from leaf litter; 15.I.2005; leg. A. van Harten.

UAE-5541: UNITED ARAB EMIRATES: Sharjah, from leaf litter; 30.X.2006; leg. A. van Harten.

UAE-5847: UNITED ARAB EMIRATES: Bithnah, from humid soil; 26.XI.2006; leg. A. van Harten.

UAE-6262: UNITED ARAB EMIRATES: Sharjah Desert Park, pitfall traps; 6-28.XII.2006; leg. A. van Harten.

UAE-6304: UNITED ARAB EMIRATES: Sharjah Desert Park, from leaf litter; 4.I.2006; leg. A. van Harten.

Yemen: Mainland

3746: YEMEN: Khamis Bani Sa'd, in leaf litter in banana plantation; 9.VI.1999; leg. A. van Harten.

Yemen: Socotra Archipelago

So1: YEMEN: Socotra, Aduno Pass, Adho di Melho, stream; 3.II.1999; leg. K. van Damme.

So4b: YEMEN: Socotra, Hoq Cave, inside cave; 6.II.1999; leg. K. van Damme.

So5b: YEMEN: Socotra, Wadi Erher, stream; 6.II.1999; leg. K. van Damme.

So7a: YEMEN: Socotra, Homhill, drinking water well; 8.II.1999; leg. K. van Damme.
So10c: YEMEN: Socotra, NE Costal plain, brackish water well; 10.II.1999; leg. K. van Damme.
So11: YEMEN: Socotra, Wadi Daneghan, stream; 13.II.1999; leg. K. van Damme.
So12: YEMEN: Samha Island, costal well; 15.II.1999, leg. K. van Damme.
So22: YEMEN: Socotra, Deksam Plateau, marsh; 24.II.1999; leg. K. van Damme.

LIST OF IDENTIFIED SPECIES

Cosmochthoniidae Grandjean, 1947

Cosmochthonius lanatus (Michael, 1885)
Locality: 3746, Yemen: 2 specimens.
Remark: Second record for Yemen.

Epilohmanniidae Oudemans, 1923

Epilohmannia cylindrica cylindrica (Berlese, 1904)
Locality: UAE-6304: 2 specimens
Remark: First record for UAE.

Phthiracaridae Perty, 1841

Hoplophorella hamata (Ewing, 1909)
Locality: 3746, Yemen: 2 specimens
Remark: First record for Yemen.

Malaconothridae Berlese, 1916

Trimalaconothrus glaber (Michael, 1888)
Localites: So4b: 5 specimens; So5b: 4 specimens; So11: 3 specimens; So12: 4 specimens.
Remark: First record for Yemen

Tectocepheidae Grandjean, 1954

Tectocepheus velatus (Michael, 1880)
Locality: UAE-5847: 1 specimen.
Remark: First record for UAE.

Tetracondylidae Aoki, 1961

Papillocepheus longisetosus sp. n.
Locality: So1: Holotype.

Eremulidae Grandjean, 1965

Eremulus arabicus sp. n.
Locality: 3746. Yemen: Holotype + 1 paratype.

Eremobelbidae Balogh, 1961

Eremobelba sp.
Locality: 3746. Yemen: 1 specimen.

Oppiidae Sellnick, 1937

Decoroppia prodigiosa gen. n., sp. n.
Locality: So10c: Holotype.

Hydrozetidae Grandjean, 1954

Hydrozetes lemnae (Coggi, 1899)
Localities: So1: 2 specimens. So11: 2 specimens, So22: 2 specimens.
Remark: First record for Yemen.

Scutoverticidae Grandjean, 1954

Ethiovertex vanharteni sp. n.
Locality: UAE-6262: Holotype + 2 paratypes.

Tegoribatidae Grandjean, 1954

Hypozetes imitator Balogh, 1959
Locality: UAE-6262: 1 specimen.
Remark: First record for UAE.

Oribatulidae Thor, 1929

Zygoribatula mabar Mahunka, 2000
Locality: UAE-6304: 10 specimens.
Remark: First record for UAE (hitherto only known from the type locality in Yemen).

Zygoribatula sharjah sp. n.
Localities: UAE-6262: Holotype + 18 paratypes; UAE-5541: 5 paratypes; UAE-5847: 2 paratypes.

Scheloribatidae Grandjean, 1953

Scheloribates sacculipunctatus sp. n.
Locality: UAE-556: Holotype + 1 paratype.

Haplozetidae Grandjean, 1936

Haplozetes vindobonensis (Willmann, 1935)
Locality: UAE- 6304: 2 specimens.
Remark: First record for UAE, also known from Yemen.

Protoribates capucinus Berlese, 1908
Locality: UAE- 6304: 2 specimens.
Distribution: First record for UAE.

Rostrozetes ovulum (Berlese, 1908)
Localities: So7a: 2 specimens; So22: 1 specimen.
Remark: First record for Socotra Archipelago, previously known from mainland Yemen.

Galumnidae Jacot, 1925

Pilogalumna arabica Bayoumi & Al-Kalifa, 1986

Locality: UAE-6304: 2 specimens.

Remark: First record for UAE, also known from Yemen.

DESCRIPTIONS AND REMARKS

Papillocepheus longisetosus sp. n. Figs 1-4

MATERIAL EXAMINED: Holotype (MHNG): So1: YEMEN, Sokotra, Aduno Pass, Adho di Melho, stream; 3.XI.1999; leg. K. van Damme.

DIAGNOSIS: Rostrum wide, without median apex. Lamellae and translamella well developed, two pairs of prodorsal condyles weakly developed. Rostral and lamellar setae setiform, interlamellar ones conspicuously long, slightly dilated. Sensillus short, its head round. Ten pairs of phylliform notogastral setae, setae c_2 narrower than the others. Genitoanal setal formula: 3 - 0 - 2 - 3, anal setae spiniform, adanal setae dilated like the notogastral ones.

MEASUREMENTS: Length of body: 582 μm, width of body: 290 μm.

DESCRIPTION: *Prodorsum*. Rostral part of prodorsum broad, slightly and flatly convex. Lamellae wide, with small cusps, connected by a distinct translamella (Fig. 1). Interlamelar surface with foveolae, their inside punctate. Two pairs of hardly observable prodorsal condyles present, the lateral ones (co. pl.) connected with the bothridia. Rostral setae arising laterally, far from each other. Lamellar setae similar to rostral setae, setiform, bent inwards, distinctly ciliate. Interlamellar setae very long, nearly as long as half the length of the lamella. Distal part willow-leaf-shaped, elongate. Sensillus short, its peduncle thin, head small, round (Fig. 4).

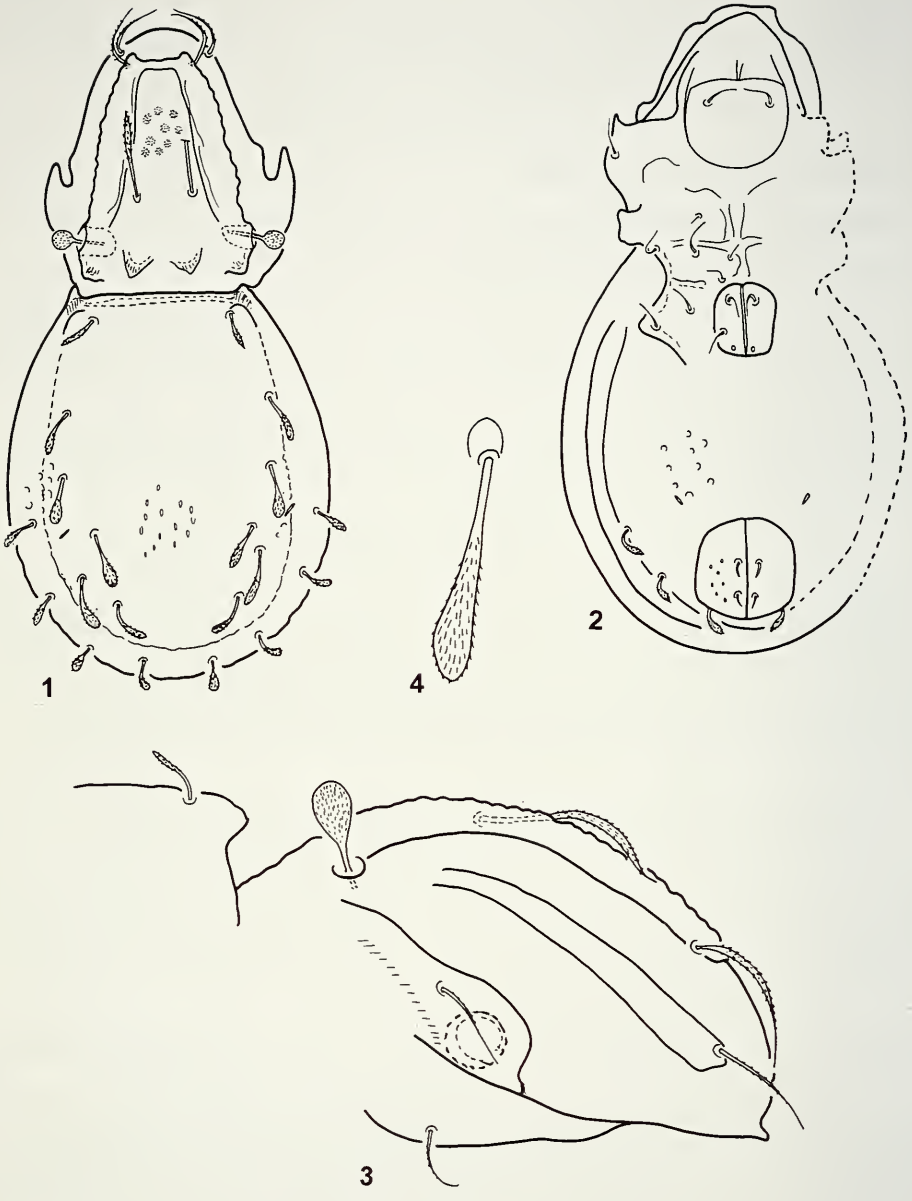
Notogaster: Notogastral surface ornamented with small elongate foveolae medially, by larger and roundish ones laterally. A pair of humeral processes (maybe the notogastral lateral condyles) also observable. Ten pairs of phylliform notogastral setae present (Fig. 4), setae c_2 narrower and more elongate than the others. These others roundish, more strongly dilated distally. All covered by small acicules or bristles. Setae p and h_3 shorter than the remaining ones.

Lateral part of podosoma: Tutorium well developed, strong, rostral setae thin, setiform, arising on distal end of the tutorium (Fig. 3). Lamellae wide, bearing dilated lamellar setae at their distal end. Pedotecta I large, setae *1c* arising on them.

Ventral parts (Fig. 2): Epimeral setae long, thin. Surface of ventral plate ornamented with large foveolae, anal plates with smaller ones. Genital setae thin, aggenital setae absent (?), anal setae spiniform, adanal ones dilated distally like the notogastral ones. The latter covered with short cilia. Lyrifissures *iad* in a preanal position.

Legs: All legs partly missing.

REMARKS: The holotype is severly damaged, therefore some of the drawings are only sketches. The new species is well characterised by the strong translamella, the median prodorsal condyles, the very long and distally dilated interlamellar setae, and the round sensillus. The new species is closest to *P. decoratus* Mahunka, 1994 (Madagascar) and *P. areolatus* Mahunka, 1987 (Kenya). *P. longisetosus* sp. n. is dis-



FIGS 1-4

Papillocepheus longisetosus sp. n., for sizes see text. (1) Body in dorsal view. (2) Body in ventral view. (3) Podosoma in lateral view. (4) Seta *lp*.

tinguished from both earlier described species by the form and length of the interlamellar setae, by the much stronger and wider translamella, by the form of the sensillus, by the ornamentation of the notogaster and the ventral plate, and by the presence of the prodorsal condyles (co. pm.). The form of the sensillus is also different among the three species.

ETYMOLOGY: The species name refers to the conspicuously long interlamellar setae.

Eremulus arabicus sp. n. Figs 5-7

MATERIAL EXAMINED: Holotype (MHNG): Yemen: Khamis Bani Sa'd, in leaf litter in banana plantation; 9.VI.1999; leg. A. van Harten (3746). – 1 paratype (1738-PO-2007, HNHM) from the same sample.

DIAGNOSIS: Rostrum nasiform. Costulae long, running parallel with each other. All prodorsal setae long, lamellar ones reaching over the rostrum. Sensillus slightly dilated, characteristically curved, with short spines. Notogastral setae strong, mostly straight and dilated. Ventral setae typical for the genus, epimeral, genital and aggenital setae stelliform, anal and adanal ones simple, ad_1 longest among the latter.

MEASUREMENTS: Length of body: 458-471 μm, width of body: 295-302 μm.

DESCRIPTION

Prodorsum: Rostral apex slightly elongated, nasiform, costulae nearly straight, long, transcostula absent (Fig. 5). No crest running to the bothridium. All prodorsal seate conspicuously long, lamellar ones originating on lamellar cusps, reaching well over the rostrum. Interlamellar setae also long, nearly as long as the length of the costulae. Exobothridial setae much shorter.

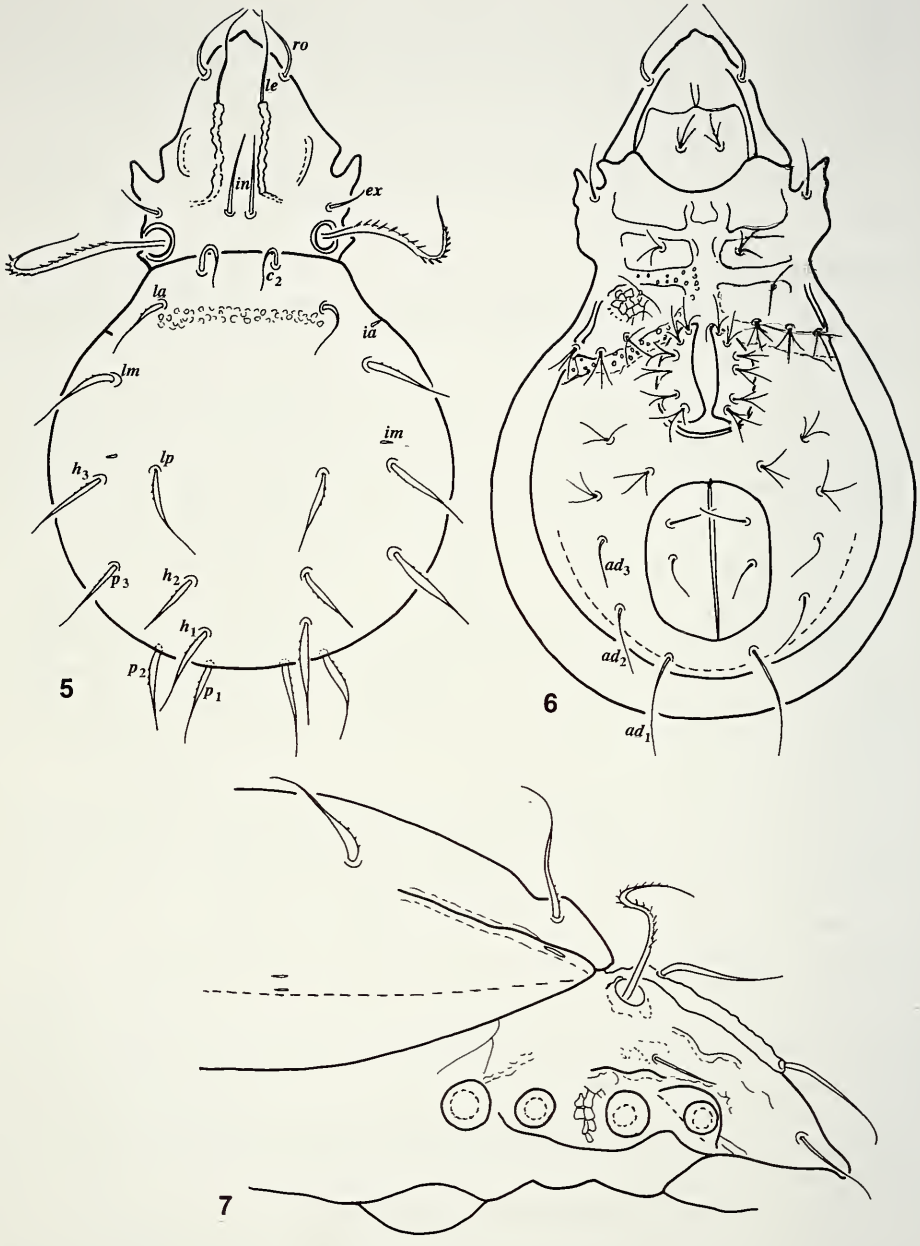
Notogaster: Notogastral surface with transversal hollow composed of alveoli. Ten pairs of strong, mostly straight and basally dilated notogastral setae present. These varying in length, with short, sometimes hardly observable spines basally. Lyrifissures ia and glandular opening well visible, lyrifissures im hardly visible.

Lateral part of podosoma (Fig. 7): Pedotectum I small, well convex. Tutorium indistinct. Lateral part of prodorsum ornamented with polygonal pattern.

Ventral parts (Fig. 6): Whole ventral surface strongly covered by secretory granules. Epimeral surface ornamented with polygonal pattern, sejugal and 4. borders (bo. 4 according to Grandjean, 1952) also with alveoli. Epimeral setae partly simple (setae *1c*), mostly stellate. Genitoanal setal formula 6 -3 -2 - 3. Genital and aggenital setae stellate, anal and adanal ones simple and comparatively long. Adanal setae gradually becoming shorter anteriorly, setae ad_1 the longest, setae ad_3 the shortest of all. All these setae smooth.

Legs: All legs monodactylous, claws well developed.

REMARKS: The differential diagnoses for the species of the genus *Eremulus* Berlese, 1913 are partly absent or insufficient, so the species are hardly distinguishable from each other, based on the available literature. However, the newly described species have some characters, which are very revealing, therefore I am able to distinguish it from all the heretofore described species. The character combination: Long and parallel costulae, absence of transversal costula and crest between the costulae, conspi-



FIGS 5-7

Eremulus arabicus sp. n., for sizes see text. (5) Body in dorsal view. (6) Body in ventral view. (7) Podosoma in lateral view.

cuously dilated notogastral setae, hardly widened sensillus, alveolate sejugal and 4. borders in the epimeral region and ratio of adanal and anal setae distinguishes the new species from all its congeners. Maybe it is closest to E. truncatus Hammer, 1971 from Viti Levu (!). The transversal ridge behind the costulae is absent, the sensillus is much longer and the notogastral setae in *E. truncatus* are much narrower than in the new species. In spite of that, the similarities between both species are very conspicuous.

From this region another *Eremulus* species (*E. flagellifer* Berlese, 1908) was recorded, however, judging from the figures in Bayoumi & Al-Khalifa (1985) it is neither identical with the new species nor with *E. flagellifer*.

ETYMOLOGY: Named after its region of origin.

DECOROPPIINAE subfam. n.

TYPE GENUS: *Decoroppia* gen. n.

DIAGNOSIS: See diagnosis of *Decoroppia* gen. n.

Decoroppia gen. n.

TYPE SPECIES: *Decoroppia prodigiosa* sp. n.

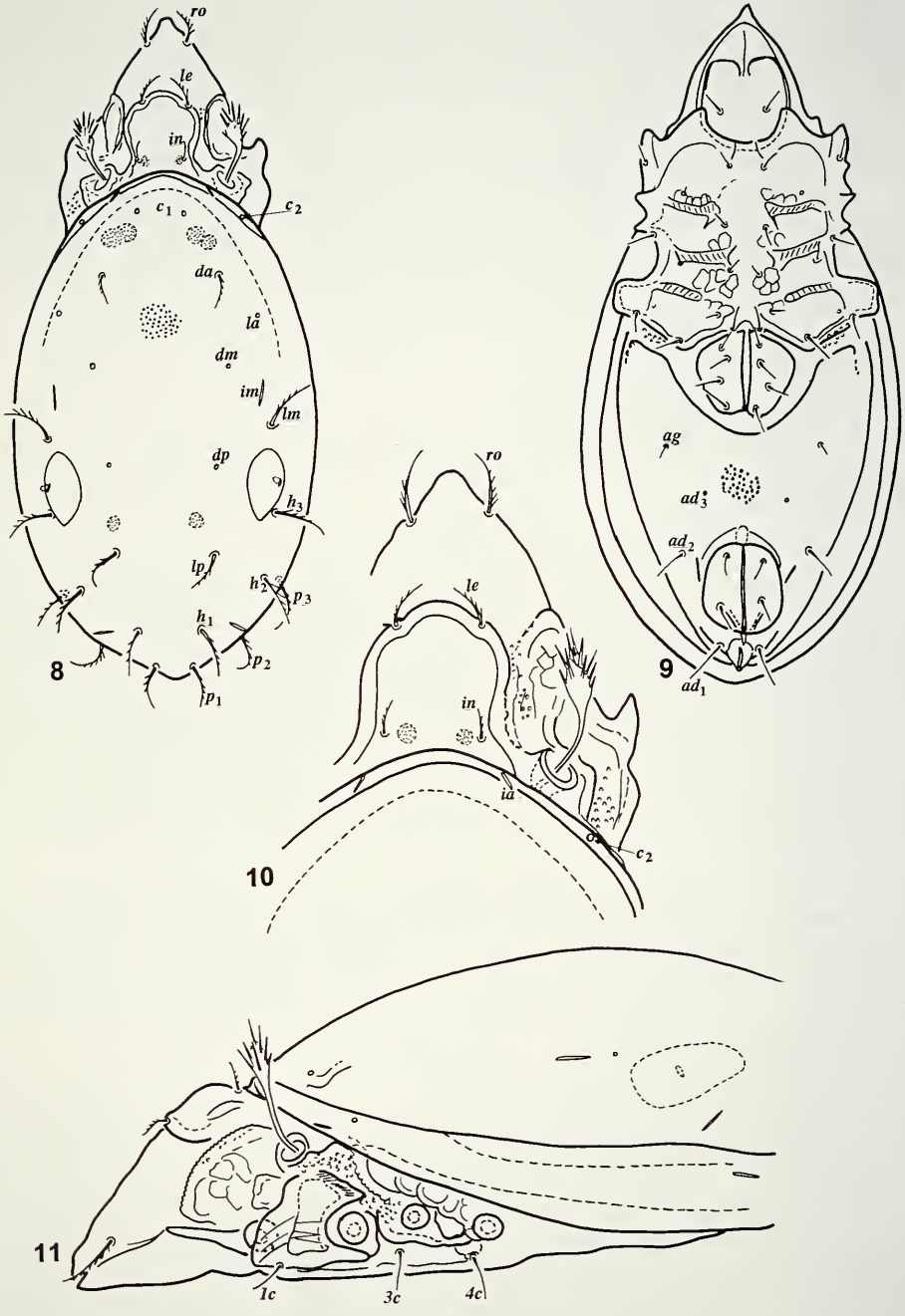
DIAGNOSIS: Family Oppiidae Sellnick, 1937. Rostrum conical. Prodorsum with a strong, horseshoe-shaped median costula, and a pair of elliptical lateral costulae. Prodorsal setae modified, wide, spiniform. Sensillus clavate, with long branches. Fourteen pairs of notogastral setae, all (?) with long cilia basally. Epimeral region well sclerotised, sternal apodemes absent. Pedotecta 1 large, discidium large and wide, nearly quadrangular. Genitoanal setal formula: 5 - 1 - 2 -3. Lyrifissures *iad* in direct apoanal position, setae ad_1 in postanal, setae ad_3 in preanal position, setae ad_2 located at anterior corner of anal aperture. A corn-shaped structure of unknown function in postanal position.

REMARKS: The single specimen examined is strongly damaged, therefore I am not able to give a complete description. Nevertheless, some of the main characters given in the diagnosis (sculpture of prodorsum, number of notogastral setae, structure of epimeral region, form of discidiun, anal and postanal features) are unique in the family Oppiidae. Therefore the description as a new genus and also the establishment of a new subfamily are justified:

Decoroppia prodigiosa sp. n. Figs 8-11

MATERIAL EXAMINED: Holotype (MHNG): So10c: YEMEN, Socotra, NE coastal plain, brackish water well; 10.II.1999; leg. K. van Damme.

DIAGNOSIS: Rostrum narrowed anteriorly. Prodorsum with well-developed costulae, median one horseshoe-shaped. A pair of small maculae present on interbothridial surface. All prodorsal setae thickened basally, with long cilia. Sensillus fusiform, with spiniform branches. Fourteen pairs of peculiar notogastral setae, slightly dilated and with long cilia. Two pairs of prose fields and a well-framed glandula observable. Epimeral surfrace ornamented with polygonal pattern and divided by strong epimeral borders. Sternal border absent. Epimeral setal formula: 3 - 1 - 3 - 3.



FIGS 8-11

Decoroppia prodigiosa sp. n., for sizes see text. (8) Body in dorsal view. (9) Body in ventral view. (10) Prodorsum in dorsal view. (11) Podosoma in lateral view.

Genital opening large, framed. Anal plate with a short crest. Anal, adanal and aggenital setae simple, thin.

MEASUREMENTS: Length of body: 332 μm, width of body: 157 μm.

DESCRIPTION

Prodorsum: Rostral apex narrowed anteriorly, conical but obtuse. Prodorsum with well-developed costulae. Median one horseshoe-shaped, well arched and also framing the bothridia (Fig. 10). Lateral arch elliptical, inner surface with weak polygonal pattern. Some small tubercles observable between median and lateral arches and also in lateral part of prodorsum. A pair of small maculae on interbothridial surface near to interbothridial setae. All prodorsal setae widened basally, rostral setae the longest, interlamellar one the shortest of all. Sensillus large, directed forewards, with fusiform head bearing 9-10 long, thin spines, directed also anteriad.

Notogaster: Dorsosejugal suture convex, protruding anteriorly, well sclerotised. Surface of notogaster distinctly punctate. Some indistinct maculae and two distinct pairs of anterior and one pair of posterior maculae (porose areas?) (Fig. 8) observable. Fourteen pairs of notogastral setae present, setae c2 represented only by alveoli (?), but some setae in the anterior part also missing, probably broken off. Lyrifissures im running longitudinally. Notogastral gland plumstone-shaped, strongly framed (Fig. 8).

Lateral part of podosoma: Pedotecta 1 large. Lateral part of prodorsum ornamented with strong lath and other peculiar crests (Fig. 11). Surface well tuberculate. Exobothridial setae not visible.

Ventral parts (Fig. 9): Anterior margin of hypostome broken medially, seemingly open. Epimeral surface well sclerotised, four pairs of epimeres well separated from each other, posterior border also strong, with a tuberculate hollow. Sternal apodema and border not clearly observable, maybe absent, a weak median line framing the epimeres. Pedotecta 2-3 with two apices, discidium very large, quadrangular, reaching laterally. Genital opening large, much larger than anal opening and framed with weak line. Ventral plate punctate, as is the notogaster. All setae in ventral region simple, setiform, smooth. Aggenital setae and setae ad3 short, all others normal.

Legs: All broken off, not studied.

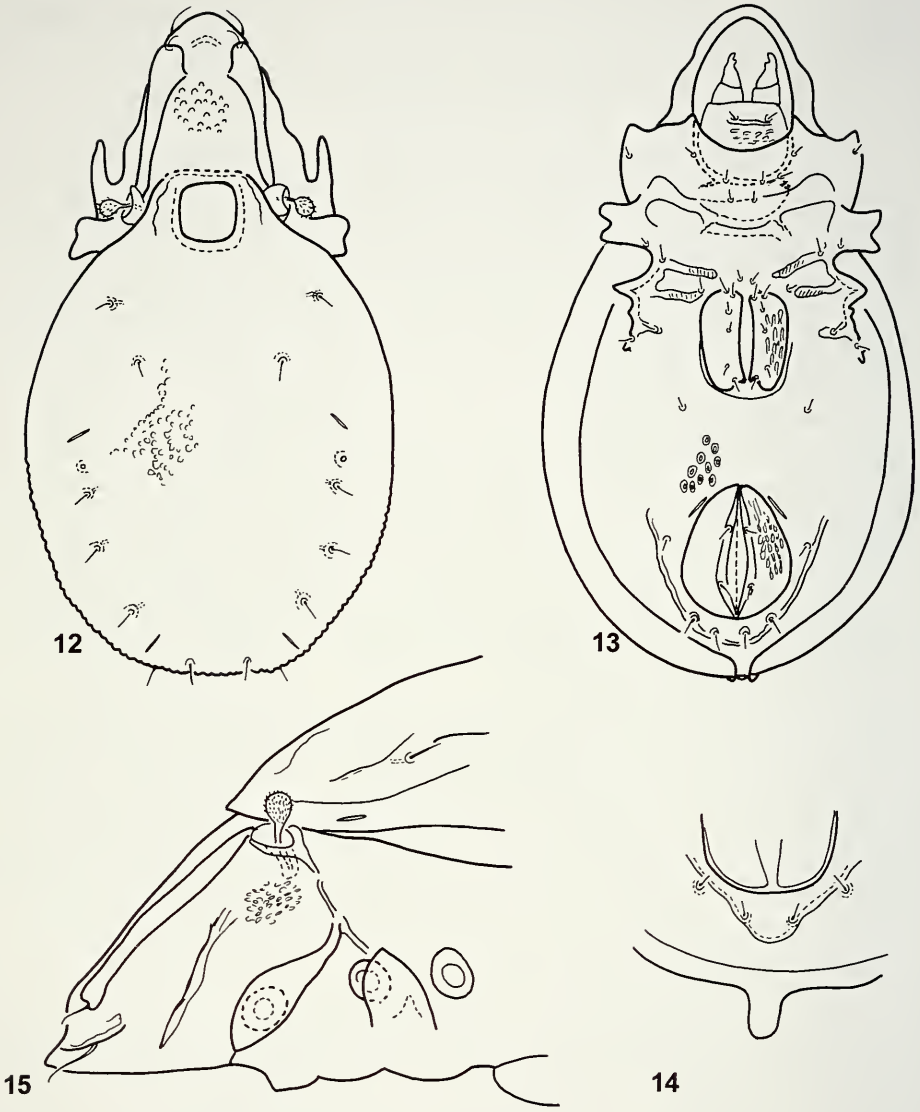
REMARKS: See the remarks after the genus diagnosis.

ETYMOLOGY: The species name refers to the characteristical, unusual structure of the four large maculae, which seem to form an area porosa.

Ethiovertex vanharteni sp. n. Figs 12-15

MATERIAL EXAMINED: Holotype (MHNG): UAE-6262: UNITED ARAB EMIRATES: Sharjah Desert Park, pitfall traps; 6-28.XII.2006; leg. A. van Harten. – 2 paratypes MHNG, HNHM 1738-PO-2007) from the same sample.

DIAGNOSIS: Lamellae situated marginally, lamellar apex wide, much wider than the basal part. Rostral setae longer than lamellar ones, interlamellar and exobothridial setae absent. Sensillus short, its peduncle slightly shorter than the round head. Seven pairs of notogastral setae present. Hypostome with transversal ribs. Apodemes weakly developed. Epimeral setae short, their alveoli framed with an annular structure. Surface



FIGS 12-15

Ethiovertex vanharteni sp. n., for sizes see text. (12) Body in dorsal view. (13) Body in ventral view. (14) Postanal region in posterior view. (15) Podosoma in lateral view.

of genital and anal plate ornamented with short ribs, surface of ventral plate with annular pustules. All legs tridactylous.

MEASUREMENTS: Length of body: 600-613 μm, width of body: 350-363 μm.

DESCRIPTION

Prodorsum: Rostrum widely rounded, behind the rostral part a convex rib present. Lamellar apices rounded anteriorly, much wider than the long basal part, the latter gradually narrowing basally (Fig. 12). Prodorsal surface covered with pustules. Rostral and lamellar setae very thin, setiform; lamellar setae smooth, rostral setae slightly roughened. Interlamellar and exobothridial setae not visible. Sensillus small, its head round, covered with short bristles, its stalk not longer than the head.

Notogaster: Dorsosejugal suture indistinct but observable. Notogastral surface covered with irregular tubercles or pustules (Fig. 12). Seven pairs of very thin, setiform, smooth notogastral setae present. Lyrifissures *im* and *ip* narrow and fine.

Lateral part of podosoma (Fig. 15): Lateral surface with divided ribs. Rostral rim well observable, bearing rostral setae. Tutorium present, without apex.

Ventral parts (Fig. 13): Hypostome with a distinct transversal rib bearing the hypostomal setae. Epimeral region well sclerotised, apodemes not touching medially. Lateral margin of pedotecta I with ribs. Epimeral setae mostly setiform or bacilliform, finely roughened. Their alveoli well framed. Epimeral setal formula: 3 - 1- 3(?) - 3. Setae 1c arising far laterally, on the margin of pedotecta 1.

Surface of ventral plate with pustules, with a characteristic bright annular central part. Surface of genital and anal plates with short ribs or narrow tubercles. Genitoanal setal formula: 6 - 1 - 2 - 3. First pair of genital setae much longer than the others. Aggenital and adanal setae spiniform, ad_1 and ad_2 in postanal position (Fig. 14), located on a rib around the anal opening.

Legs: All legs tri- and heterodactylous.

REMARKS: The genus *Ethiovertex* Mahunka, 1982 was separated from the other Scutoverticidae on the basis of the number of notogastral setae, the absence of a translamella, and by the wide lamellar apices and the lateral position of the lamellae. The number of claws (2-3) and the sculpture of different surfaces of the body are variable.

The new species is closest to the type species of the genus, *E. macrosetosus* Mahunka, 1982 (Ethiopia), and to *E. bidactylus* (Mahunka, 1989) (Kenya). *E. vanharteni* sp. n. is distinguished from these two congeners by the short round head of its sensillus (much longer and clavate in *E. macrosetosus* and *E. bidactylus*) and by the sculpture of its genital and anal plates (nearly smooth in the old species and well covered with short ribs in *E. vanharteni*).

ETYMOLOGY: I dedicate the new species to Antonius van Harten, who collected mites all over the world.

Hypozetes imitator Balogh, 1959

The species of the genus *Hypozetes* are difficult to separate, therefore a thorough revision is desirable. It is highly probable that only one or two valid species will remain in the genus, the rest are mere synonyms.

The newly collected single specimen cannot be distinguished from the type species of the genus. It is interesting that Bayoumi and Al Khalifa (1984) reported *H. translamellatus saudicus* from this territory. This record needs to be confirmed.

Zygoribatula sharjah sp. n. Figs 16-19

MATERIAL EXAMINED: Holotype (MHNG): UAE-6262: UNITED ARAB EMIRATES: Sharjah Desert Park, pitfall traps; 6.-28.XII.2006; leg. A. van Harten. – 18 paratypes from the same sample. – 5 paratypes: UAE 5541: UNITED ARAB EMIRATES: Sharjah, from leaf litter; 30.X.2006; leg A. van Harten. – 2 paratypes: UAE-5847: UNITED ARAB EMIRATES: Bithnah, from humid soil; 26.XI.2006; leg. A. van Harten. Holotype and 17 paratypes in MHNG, 8 paratypes (1739-PO-2007) in HNHM.

DIAGNOSIS: Rostral apex elongate, well separated from rostral margin. Lamellae and translamella wide, without sharp cusps. Prodorsal setae long, sensillus small, with a small, rounded, barbed head. Dorsosejugal suture convex, humeral projection present. Notogastral setae varying in length and in shape. Porose area *Aa* very long, slit-like. Epimeral borders weakly developed, epimeral setae mostly short and fine. All legs tridactylous.

MEASUREMENTS: Length of body: 502-564 μm, width of body: 370-402 μm.

DESCRIPTION

Prodorsum: Rostral apex strongly narrowing anteriorly, bill-shaped, rostral margin on both sides of projection slightly excavated (Fig. 18). Lamellae well developed, nearly as wide as translamella. Lateral cusps rounded, translamella slightly undulate anteriorly. A fine arched line present at insertion of rostral setae. All prodorsal setae long, setiform, ciliate, their ratio: *ex* < *ro* < *le* < *in*.

Notogaster: Dorsosejugal suture convex medially, concave beside median projection, humeral elevation laterally observable. Notogastral surface smooth, fourteen pairs of notogastral setae of different lengths, setae in anterior part of notogaster mostly much longer and stronger than setae in posterior part. Setae c_1 only half as long as setae c_2 and *la*. Posteromarginal setae shortest of all. Four pairs of well-developed porose areas present, *Aa* narrow, slit-like, long (Fig. 16), located very close to seta *la*. Porose area A_1 slightly elongate, A_2 and A_3 much shorter than the A_1.

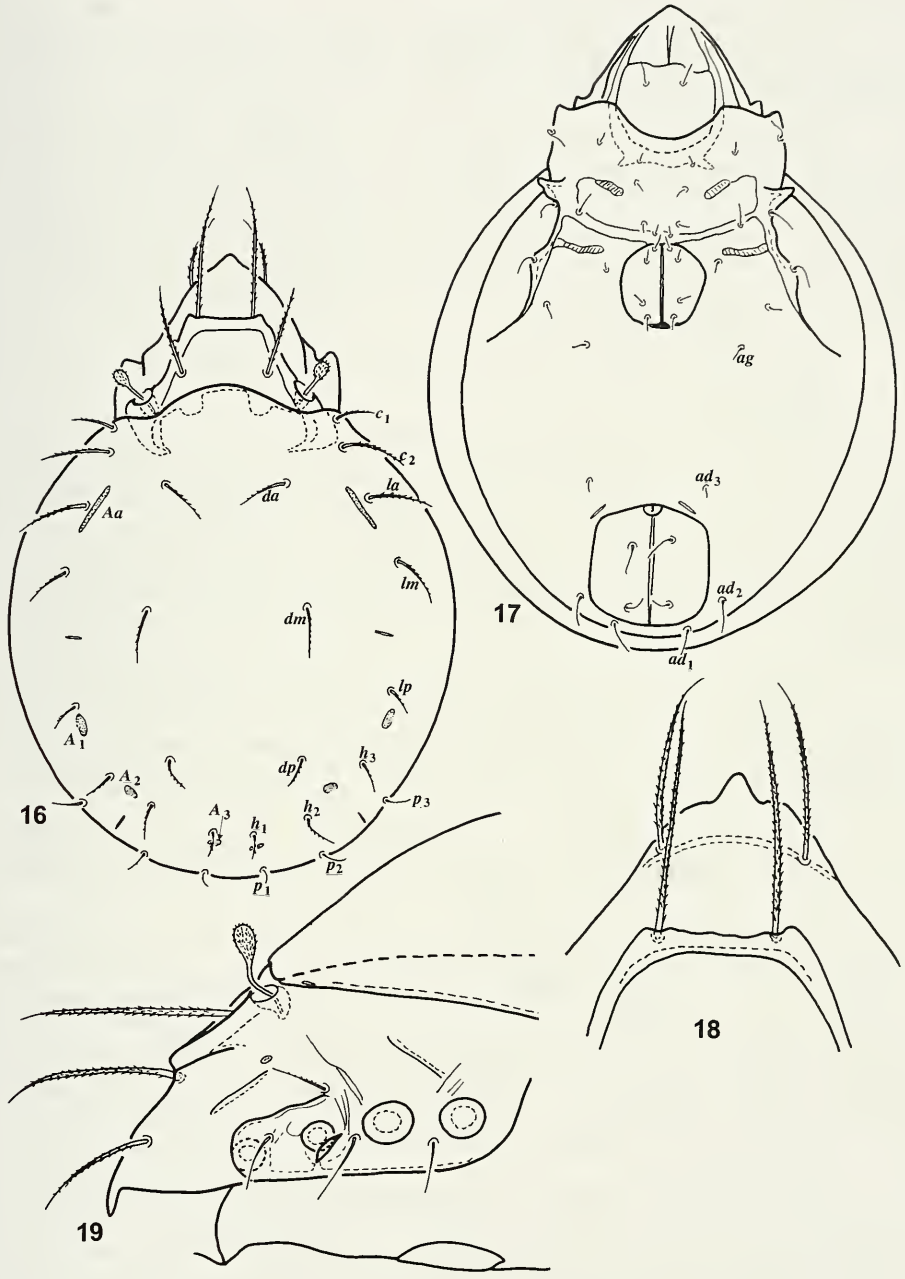
Lateral part of podosoma (Fig. 19): Rostral apex distinctly projecting, separate from the rostrum. Sublamella very short. Tutorium also short, indistinct. Porose area *Al* small. Dorsal margin of pedotecta 1 undulating, seta *1c* arising on it. Circumpedal carina not reaching lateral margin of ventral plate.

Ventral parts (Fig. 17): Apodemes and borders weakly developed, short, only the sejugal ones long and forming a transversal band. All epimeral setae short, mostly smooth, only the lateral ones slightly ciliate. Setae 4c arising on lateral margin of discidium. Anal setae as long as setae ad_1 and ad_2 in postanal position, ad_3 in preanal position shorter. Lyrifissures *iad* also in preanal position.

Legs: All legs tridactylous and heterodactylous.

REMARKS: The new species belongs to the *Z. undulata* species group (see Grobler, 1993; Grobler & Kok, 1993), which is characterised by the elongate porose area *Aa*. On the basis of the very long and narrow *Aa* the new species is closest to *Z. lineaporosa* Grobler, 1993. The notogastral setae are much shorter, equal in length and smooth in *Z. lineaporosa*, varying in length and partly well pilose in the new species. The position of the porose area Aa also different in these two species.

ETYMOLOGY: The specific epithet is a noun in apposition and refers to the type locality.



FIGS 16-19

Zygoribatula sharjah sp. n., for sizes see text. (16) Body in dorsal view. (17) Body in ventral view. (18) Anterior part of prodorsum. (19) Podosoma in lateral view.

Scheloribates sacculipunctatus sp. n. Figs 20-22

MATERIAL EXAMINED: Holotype (MHNG): UAE 556: UNITED ARAB EMIRATES: Near al-Hayer, from leaf litter, 15.I.2005; leg. A. van Harten. – 1 paratype (1740-PO-2007, HNHM) from the same sample.

DIAGNOSIS: Rostrum without median apex, rounded. Lamellae well developed, prelamellae and sublamellae present. Prelamella not directed to insertion of rostral setae. A pair of comparatively long, fine lines present in translamellar position. All prodorsal setae densely barbed. Sensillus long, directed backwards, gradually dilated. Ten pairs of distinct notogastral setae and four pairs of sacculi present, all sacculi distinctly punctate, resembling a porose area. Most epimeral setae finely pilose, setae in ventral region short. All legs tridactylous.

MEASUREMENTS: Length of body: 275-302 μm, width of body: 132-143 μm.

DESCRIPTION

Prodorsum: Rostral apex wide, rounded. Lamellae narrow, directed inwards, bearing rostral setae distally. A pair of fine, conspicuously long translamellar lines present between them, both lines nearly straight (Fig. 20). Prelamellae and sublamellae long, prelamellae not directed to insertion of rostral setae (Fig. 22). Sublamellae not reaching to bothridium. Ratio of prodorsal setae: *in* > *le* > *ro* > *ex*. All setae densely barbed. Sensillus long, directed outwards and backwards, its head gradually widening distally, comparatively long, lanceolate, with pointed distal end, covered by short bristles.

Notogaster: Very wide, nearly as long as wide. Dorsosejugal suture conspicuously arched medially and excavate behind the bothridia. Pteromorphae large, well observable laterally. Notogastral surface smooth. Ten pairs of distinct, comparatively long setae and four pairs of large sacculi present. All sacculi well discernible, their inside well punctate (Fig. 20).

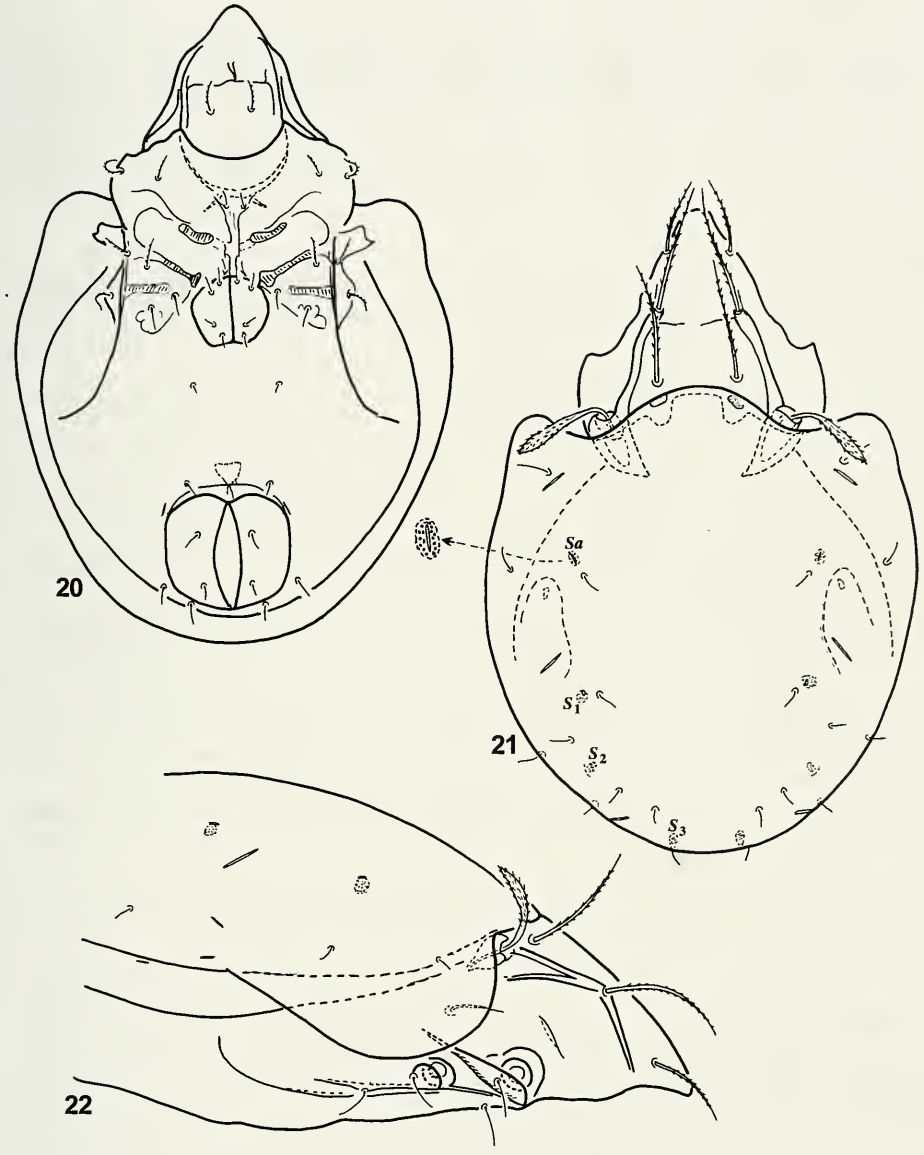
Lateral part of podosoma (Fig. 22): Sublamellar and exobothridial region without pattern. Lamellar area porosa small, round, exobothridial setae short. Tutorium short but discernible. Pedotecta 1 narrow.

Ventral parts (Fig. 21): Apodema 2 and sejugal apodema long, the latter ending near the genital apertures. Epimeral setal formula 3 - 1 - 3 - 3. All setae in inner position thin and simple, outer setae (1c, 3b, 3c, 4c) thicker and densely barbed. Discidium large, circumpedal carina long but not reaching to lateral border of ventral plate. Anogenital surface smooth. Genital aperture small, much smaller than the anal one, situated far from each other. All setae short and simple, lyrifissures iad located at anterior corner of anal aperture.

Legs: All tarsi tri- and heterodactylous. Ventral blades of femora II-IV rounded.

REMARKS: The new species is well characterised by the presence of long translamellar lines, the form of its sensillus, the characteristically punctate sacculi, the distinct notogastral setae and the number of claws. On this basis it can be attributed to the genus *Scheloribates* Berlese, 1908 and to the *praeincisus* species group (see Balogh & Balogh 2002). The new species is distinguished from related species by the unique structure of its sacculi and the form of its sensillus.

ETYMOLOGY: The species name refers to the characteristical structure of the sacculi, resembling an area porosa.



FIGS 20-22

Scheloribates sacculipunctatus sp. n., for sizes see text. (20) Body in dorsal view. (21) Body in ventral view. (22) Podosoma in lateral view.

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